

gest, that the best Expedient would be, to find out a Wood having that quality. But certainly there being now no Timber, fit for Ships, that is not known, 'tis not likely that any will be found either more hard, or more bitter, than that, which has been hitherto employed. Some do imagine, that the Proposer will, by certain *Lixiviums*, give to the ordinary Wood such a quality and bitterness, as is found in the already mention'd *Indian Pear-tree*. But this also will hardly succeed, since it will be requisite not only to make *Lixiviums*, in great quantities at an easie rate, and strong enough to penetrate the thick sides of a Ship, but also to make them durable enough, not to be wash't out by the Sea. Yet notwithstanding, in these matters one ought to suspend on's judgement, untill experience do shew, what is to be believed of them.

So far the Extract. To which it may perhaps not be unseasonable to add, that a very worthy person in *London*, suggests the Pitch, drawn out of Sea coles, for a good Remedy to scare away these noysome insects.

An Account

Of a Book, very lately publish't, entituled, The Origine of Forms and Qualitiës, illustrated by Considerations and Experiments, by the Honourable Robert Boyle.

This Curious and Excellent Piece, is a kind of *Introduction* to the *Principles* of the *Mechanical Philosophy*, explicating, by very Considerable Observations and Experiments, what may be, according to such Principles, conceived of the *Nature and Origine of Qualities and Forms*; the knowledge whereof, either makes or supposes the Fundamental and Useful part of *Natural Philosophy*. In doing of which, the Author, to have his way the clearer, writes rather for the *Corpuscularian Philosophers* (as he is pleas'd to call them) in *General*; than any
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Party of them, keeping himself thereby disengaged from adopting an *Hypothesis*, in which perhaps he is not so thoroughly satisfied, and of which he does not conceive himself to be necessitated to make use here; and accordingly forbearing to employ Arguments, that are either grounded on, or suppose *Atoms*, or any *Innate Motion* belonging to them; or that the Essence of Bodies consists in Extension; or that a *Vacuum* is impossible; or that there are such *Globuli Caelestes*, or such a *Materia Subtilis*, as the *Cartesians* imploy to explicate most of the *Phaenomena* of Nature.

The *Treatise* consisting of a *speculative*, and an *Historical* part, the Author, with great modesty leaves the *Reader* to judge; *Whether* in the *First* part he hath treated of the *Nature* and *Origine* of *Forms* and *Qualities* in a more Comprehensive way, than others; *Whether* he has by fit Examples, and other means, rendred it more intelligible, than they have done: *Whether* he has added any considerable number of *Notions* and *Arguments* towards the compleating and confirming of the proposed *Hypothesis*: *Whether* he has with reason dismissed *Arguments* unfit to be relied on; and *Whether* he has proposed some *Notions* and *Arguments* so warily, as to keep them from being liable to *Exceptions* and *Evasions*, whereto they were obnoxious, as others have proposed them. And, as to the *Second* and *Historical* part, he is inclin'd to believe, that the *Reader* will grant, he hath done that part of *Physicks*, he is treating of, some service, by strengthening the doctrines of the *New Philosophy* (as 'tis call'd) by such particular *Experiments*, whose *Nature* and *Novelty* will render them as well *Acceptable* as *Instruative*.

The *summe* of the *Hypothesis*, fully and clearly explicated in the *First* Part, is this;

That all Bodies are made of one *Catholick matter*, common to them all, and differ but in *Shape*, *Size*, *Motion* or *Rest*, and *Texture* of the small parts, they consist off; from which *Affections*

tions of Matter, the *Qualities*, that difference particular Bodies, result: whence it may be rationally concluded, that one kind of Bodies may be transmuted into another; *that* being in effect no more, than that one Parcel of the Universal Matter, wherein all Bodies agree, may have a *Texture* produced in it, like the *Texture* of some other Parcel of Matter, common to them both.

To this *Hypothesis*, is subjoin'd an Examination of the *Scholastick* opinion of *Substantial Forms*; where the Author, *First*, States the Controversie; *next*, gives the Principal reasons, that move him to oppose that Opinion; *then*, answers the Main arguments employed to evince it; *further*, assigns both the *First Cause* of Forms (*God*;) and the Grand *Second Cause* thereof (*Local Motion*;) and *lastly*, proves the *Mechanical* Production of *Forms*; grounding his proof, *partly* upon the Manner, by which such a *Convention of Accidents*, as deserve to pass for a *Form*, may be *produced*; as that the Curious Shapes of *Salts* (believed to be the admirablest Effects and strongest Proofs of *Substantial Forms*) may be the Results of *Texture*; *Art* being able to produce *Vitriol* as well as *Nature*: *partly*, upon the possibility of *Reproducing* Bodies by skill, that have been deprived of their reputed *Substantial Forms*: Where he alledges the *Redintegration of Saltpetre*, successfully performed by himself; though his Attempts, made upon the dissipation and re-union of *Amber*, *Allum*, *Sea-Salt*, and *Vitriol*, proved (by reason of *accidental* hindrances rather, than of any impossibility in the Nature of the Thing) less successful.

In the *Second* and *Historical* Part, the Author, appealing to the Testimony of Nature, to verify his Doctrine, sets down, *both* some *Observations*, of what Nature does without being over-ruled by the power and skill of man; and some *Experiments*, wherein Nature is guided, and as it were, mastered by Art.

The *Observations* are four.

1. The *First* is taken from what happens in the *Hatching of*
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an *Egge*; out of the *White* whereof, which is a substance Similar, insipid, soft, diaphanous, colourless, and readily dissoluble in cold water, there is by the *New* and *Various* contrivement of its small parts, caused by the Incubation of the Hen, an Animal produced, some of whose parts are opacous, some red, some yellow, some white, some fluid, some consistent, some solid and frangible, others tough and flexible, some well, some ill-tasted, some with springs, some without springs, &c.

2. The *Second* is fetcht from *Water*, which being fluid, tasteless, inodorous, diaphanous, colourless, volatile, &c. may by a *Differing Texture* of its parts, be brought to constitute Bodies, having qualities very distant from these, as *Vegetables*, that have firmness, opacity, odors, tastes, colours, Medicinal virtues; yielding also a true *Oyle*, that refuses to mingle with *Water*, &c.

3. The *Third*, from *Inoculation*; wherein, a small *Bud* is able so to transmute all the sap, that arrives at it, as to make it constitute a Fruit quite otherwise qualified, then that, which is the *genuine* production of the Tree, so that the same sap, that in one part of the Branch constitutes (for Instance) a *Cluster of Haws*, in another part of the same Branch, may make a *Pear*. Where the Author mentions divers other very considerable Effects of Inoculations, and inserts several Histories, all countenancing his doctrine,

4. The *Fourth*, from *Putrified Cheese*; wherein, the *rotten* part, by the alteration of its *Texture*, will differ from the *Sound*, in colour, odor, taste, consistence, vermination, &c.

The Experiments are ten.

1. A *Solution of Vitriol and Camphire*; in which by a change of *Texture*, appear'd the Production of a deep colour from a white

white Body, and a clear Liquor without any external heat: The destruction of this Colour, by adding only some fair water: The change of an Odorous Body, *as Camphire*, into an Inodorous, by mixing it with a Body, that has scarce any sensible odour of its own: The sudden restauration of the *Camphire* to its native scent and other qualities, by common water, &c.

2. *Sublimate, distill'd from Copper and Silver*, which both did wholly loose their Metalline forms, and were melted into brittle lumps, with colours quite differing from their own; both apt to imbibe the moisture of the Air, &c.

3. *A solution of Silver into Luna Cornea*: V Whereby the opacous, malleable and hardly fusible Body of *Silver*, was, by the addition of a little spirit of salt, reduced into Chrystals, differing from those of other Mettals; diaphanous also, and brittle, and far more easily fusible, than Silver; wholly unlike either a Salt or a Mettal, but very like to a piece of *Horn*, and withall insipid, though the Solution of Silver, be very bitter, and the spirit of salt, highly sowre, &c.

4. *An Anomalous Salt*; (which the Author had not, it seems the liberty to teach the Preparation off) whose Ingredients were purely Saline, and yet the Compound, made up only of salt, sowre, and strongly tasted Bodies, was rather *really* sweet, than of any other taste, and when a little urged with heat, its odour became stronger, and more insupportable than that of *Aqua fortis*, *distilled Urine*, and even *spirit of salt Armoniack*; but yet when these Fumes settled again into salt, their odour would again prove inoffensive, if not pleasant, &c.

. *A Sea-salt, whence Aqua fortis had been distilled*: Where the Liquor, that came over, proved an *Aqua Regis*: the substance in the bottom, had not onely a mild taste, and

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affected the Pallat much more like salt-peter, than Common salt; but was also very fusible, and inflammable, though produced of two un-inflammable bodies: and the same substance, consisting of *Acid* salts, by a certain way of the Author, produced a *Fixt* salt.

6. *Oyle of Vitriol pourell upon a Solution of Bay-salt*: whence was abstracted a liquor, that by the Smell and Taste appeared to be a Spirit of salt. In which operation, the mixture, by working a great change of Texture, did so alter the nature of the compounding Bodies, that the sea-salt, though a considerably fixt Body, was distill'd over in a moderate Fire of sand, whilst the Oyl of Vitriol, though no such gross salt, was by the same operation so fixt, as to stay behind: Besides that the same, by a competent heat yeilded a substance, though not insipid, yet not at all of the taste of Sea-salt, or of any other pungent one, much less having the highly corrosive acidity of oyl of Vitriol, &c.

7. *A dissolvent, made by pouring a strong spirit of Nitre on the rectified Oyl of the Butter of Antimony, and then distilling off all the liquor, that would come over, &c.* This *Menstruum* (called by the Author *Peracutum*) being put to highly refined Gold, destroyed its Texture, and produced, after the method prescribed in the book, a *true Silver*, as its whiteness in colour, dissolubleness in *Aqua fortis*, and odious Bitterness, did manifest: which change of a Mettal, commonly esteemed to be absolutely indestructible by Art, though it be far from being *Luciferous*, is yet exceedingly *Instructive*; as is also the way, the Author here adds, of *Volatilizing* Gold, by the power of the same *Dissolvent*.

8. *Aqua fortis, concoagulated with differing Bodies*, produced very differing Concretes: And the same Numeral Saline Corpuscles, that being associated with those of one Mettal, had already produced a Body eminent in one Taste, did after-

terwards, being freed from that Body, compose a Liquor of a very differing taste; and after *that* too, being combin'd with the parties of another Mettal, did with them constitute a Body of a very eminent Taste, as opposite as any one can be to both the other Tasts; and yet these Saline Corpuscles, being instead of this second Mettal, associated with such a one as that, they are driven from, did therewith exhibite again the first of the three mention'd Tasts.

9. *Water transmuted into Earth*, though the Author faith of this Transmutation, that it was not so perfect; as he wish'd, and as he hopes to make it.

10. *A mixture of Oyle of Vitriol and Spirit of Wine*. These two Liquors, being of odd Textures in reference to each other, their conjunction and distillation made them exhibite these *Phænomena*: *vid.* That, whereas Spirit of Wine has no great, nor good scent, and moderately dephlegm'd Oyl of Vitriol is wont to be inodorous; the Spirit, that first came over from their mixture, had a scent not only very differing from Spirit of Wine, but from all things else, that the Author ever smelt; the Odor being very fragrant & pleasant, and so subtle, that in spite of the care taken in luting the Glasses exactly together, it would perfume the neighbouring parts of the *Laboratory*, and afterwards smell strongly at some distance from the Viol, wherein it was put, though stopp'd with a close Cork, covered with two or three several Bladders. But, after this volatile and odoriferous Spirit was come over, and had been follow'd by an Acid Spirit, it was at last succeeded by a strongly stinking Liquor, &c.

But *Manum de Tabula*: the Book it self will certainly give a satisfaction far beyond what here can be said of it.

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